SUBJECT INDEX

A

Acetaminophen, 459–60
Acetylcholine, 77–77, 81, 115
  $GABA_B$-mediated inhibition of, 115
Acetylcholine esterase (AChE), 476
Actyl-glycerol-ether-phosphorylcholine (AGEPC) (See Platelet-activating factor)
Acetyltriethylcholine, 25, 36
Acquired immunodeficiency syndrome (See AIDS)
ACTH (See Adrenocorticotropic hormone)
Actin, 56
Acute myeloid leukemia
  gene therapy for, 583
Acylation, 201, 205–7, 221–24
  N-myristoylation, 206–7, 221–24, 229
    heterotrimeric G-proteins, 222–24
  thioester-linked palmitoylation, 206–7, 224
Acycloguanosine (See Acyclovir)
N-Acyloxymethyl, 530
Acyclovir, 17–21
  development of, 17–21
  herpes virus and, 16–20
Adducin, 56
Adenine phosphoribosyltransferase, 7
Adenosine
  endothelial function and, 72, 74, 76–78, 84–85
  ATP-sensitive potassium channels and, 621
Adenosine deaminase (ADA), 574, 581–82
Adenosine deaminase (ADA) deficiency
  gene therapy for, 574, 581–82
Adenosine triphosphate, 75
Adenyl cyclase
  parathyroid hormone-induced, 257
Adenylate cyclase activity
  arginine-specific, 209
  G-protein-mediated signal transduction and, 202–3
Adenylate cyclase phosphoinositide metabolism
  G-proteins and, 202
Adenylyl cyclase
  calmodulin and hormonal activation of, 49–50
  calmodulin and transmitter-sensitive, 49–51
  calmodulin-sensitive, 49–51, 60
  type I, 50–51
  thyrotropin and, 50
Adenylyl cyclase activity
  dopamine receptors and, 2287
Adhesion molecules, 71, 74–76, 80–82
  endothelial dysfunction and, 80–82
  endothelial ligands for, 74
  granular membrane protein 140 (GMP-140), 75–76, 80
  intercellular adhesion molecule-1 (ICAM-1), 76–76
Adinazolam, 173
ADP
  platelet aggregation and, 258
ADP-ribosylation, 201, 204–12, 227–29
  botulinum toxin-, 210–12
  cholera toxin-mediated, 208–9
  of G-proteins, 207–12, 227–29
  pertussis toxin-mediated, 209–10
ADP-ribosylation factor, 204
Adrenal gland
  modulation of effects of morphine by, 354
  opiates and, 365–66
β_2-Adrenergic receptor, 283, 286
α_2-Adrenergic receptor–G-protein coupling
  signal transduction and, 245–46
Adrenocorticotropic hormone (ACTH), 92, 94, 353–75
  morphine and, 356
  pituitary adrenal axis and, 94
  synthesis and release of, 354
α_2-Adrenoreceptor, 243–69
  prejunctional, 255–56, 259
  primary structure of human kidney, 245–47
  structure of human platelet, 244–47
α_2-Adrenoreceptor agonists
  therapeutic applications of, 263–67
    adjuncts to anesthesia, 265–66
    analgesics, 265
    constitutional growth delay and, 266
    diarrhea and, 266–67
    glaucoma and, 266
    hyperactivity and, 264–65
    hypertension and, 263
    opiate withdrawal and, 263
α_2-Adrenoreceptor antagonists
  therapeutic applications of, 267–69
    depression and, 269
    impotence and, 267–68
    non-insulin-dependent diabetes and, 268
    obesity and, 268–69
    Raymond's phenomena, 267
α_2-Adrenoreceptor genes, 244–48
α_2-Adrenoreceptor functions, 253–63
  cardiovascular regulation, 253–54
    antihypertensive action and, 253
    brainstem site of action of, 253
    lateral reticular nucleus in the ventrolateral medulla, 253–54
  endothelial function, 262
  gastrointestinal tract motility, 259–60
  inhibition of neurotransmitter release, 255–56
  lipoprotein metabolism, 262–63
  modulation of pituitary hormone release, 255
  pancreatic islet cell function, 260
  platelet aggregation, 258–59
  regulation of affect, arousal, and pain, 254–55
  renal excretory function, 257–58
  urogenital system, 260–62
  vascular smooth muscle contraction, 256–57
α_2-Adrenoreceptor subtypes, 243–69
  functional subclassification of, 250–52
  hydrophobicity analysis of, 245–47
  ligand-binding sites of, 247–50
  molecular basis of, 244–48
  Southern blot analysis of, 244–45
Affective disorders
  neuropeptide Y-related causal component of, 336–38
AIDS
  AZT-resistant HIV and 149–60
AIDS-related complex (ARC)
  AZT-resistant HIV and, 149, 151
Alcoholism
  dopamine D_2 receptor and, 300
Adicarb, 189
Allopurinol
  gout treated with, 12–13
  hyperuricemia treated with, 12–13
  leishmaniasis treated with, 15–16
Alprazolam, 173
γ-Aminobutyric acid (See GABA)
Aminofluorene, 393
3-Aminopropyl (methyl) phosphinic acid, 113–14

SUBJECT INDEX

A

Acetaminophen, 459–60
Acetylcholine, 77–77, 81, 115
  $GABA_B$-mediated inhibition of, 115
Acetylcholine esterase (AChE), 476
Actyl-glycerol-ether-phosphorylcholine (AGEPC) (See Platelet-activating factor)
Acetyltriethylcholine, 25, 36
Acquired immunodeficiency syndrome (See AIDS)
ACTH (See Adrenocorticotropic hormone)
Actin, 56
Acute myeloid leukemia
  gene therapy for, 583
Acylation, 201, 205–7, 221–24
  N-myristoylation, 206–7, 221–24, 229
    heterotrimeric G-proteins, 222–24
  thioester-linked palmitoylation, 206–7, 224
Acycloguanosine (See Acyclovir)
N-Acyloxymethyl, 530
Acyclovir, 17–21
  development of, 17–21
  herpes virus and, 16–20
Adducin, 56
Adenine phosphoribosyltransferase, 7
Adenosine
  endothelial function and, 72, 74, 76–78, 84–85
  ATP-sensitive potassium channels and, 621
Adenosine deaminase (ADA), 574, 581–82
Adenosine deaminase (ADA) deficiency
  gene therapy for, 574, 581–82
Adenosine triphosphate, 75
Adenyl cyclase
  parathyroid hormone-induced, 257
Adenylate cyclase activity
  arginine-specific, 209
  G-protein-mediated signal transduction and, 202–3
Adenylate cyclase phosphoinositide metabolism
  G-proteins and, 202
Adenylyl cyclase
  calmodulin and hormonal activation of, 49–50
  calmodulin and transmitter-sensitive, 49–51
  calmodulin-sensitive, 49–51, 60
  type I, 50–51
  thyrotropin and, 50
Adenylyl cyclase activity
  dopamine receptors and, 2287
Adhesion molecules, 71, 74–76, 80–82
  endothelial dysfunction and, 80–82
  endothelial ligands for, 74
  granular membrane protein 140 (GMP-140), 75–76, 80
  intercellular adhesion molecule-1 (ICAM-1), 76–76
Adinazolam, 173
ADP
  platelet aggregation and, 258
ADP-ribosylation, 201, 204–12, 227–29
  botulinum toxin-, 210–12
  cholera toxin-mediated, 208–9
  of G-proteins, 207–12, 227–29
  pertussis toxin-mediated, 209–10
ADP-ribosylation factor, 204
Adrenal gland
  modulation of effects of morphine by, 354
  opiates and, 365–66
β_2-Adrenergic receptor, 283, 286
α_2-Adrenergic receptor–G-protein coupling
  signal transduction and, 245–46
Adrenocorticotropic hormone (ACTH), 92, 94, 353–75
  morphine and, 356
  pituitary adrenal axis and, 94
  synthesis and release of, 354
α_2-Adrenoreceptor, 243–69
  prejunctional, 255–56, 259
  primary structure of human kidney, 245–47
  structure of human platelet, 244–47
α_2-Adrenoreceptor agonists
  therapeutic applications of, 263–67
    adjuncts to anesthesia, 265–66
    analgesics, 265
    constitutional growth delay and, 266
    diarrhea and, 266–67
    glaucoma and, 266
    hyperactivity and, 264–65
    hypertension and, 263
    opiate withdrawal and, 263
α_2-Adrenoreceptor antagonists
  therapeutic applications of, 267–69
    depression and, 269
    impotence and, 267–68
    non-insulin-dependent diabetes and, 268
    obesity and, 268–69
    Raymond's phenomena, 267
α_2-Adrenoreceptor genes, 244–48
α_2-Adrenoreceptor functions, 253–63
  cardiovascular regulation, 253–54
    antihypertensive action and, 253
    brainstem site of action of, 253
    lateral reticular nucleus in the ventrolateral medulla, 253–54
  endothelial function, 262
  gastrointestinal tract motility, 259–60
  inhibition of neurotransmitter release, 255–56
  lipoprotein metabolism, 262–63
  modulation of pituitary hormone release, 255
  pancreatic islet cell function, 260
  platelet aggregation, 258–59
  regulation of affect, arousal, and pain, 254–55
  renal excretory function, 257–58
  urogenital system, 260–62
  vascular smooth muscle contraction, 256–57
α_2-Adrenoreceptor subtypes, 243–69
  functional subclassification of, 250–52
  hydrophobicity analysis of, 245–47
  ligand-binding sites of, 247–50
  molecular basis of, 244–48
  Southern blot analysis of, 244–45
Affective disorders
  neuropeptide Y-related causal component of, 336–38
AIDS
  AZT-resistant HIV and 149–60
AIDS-related complex (ARC)
  AZT-resistant HIV and, 149, 151
Alcoholism
  dopamine D_2 receptor and, 300
Adicarb, 189
Allopurinol
  gout treated with, 12–13
  hyperuricemia treated with, 12–13
  leishmaniasis treated with, 15–16
Alprazolam, 173
γ-Aminobutyric acid (See GABA)
Aminofluorene, 393
3-Aminopropyl (methyl) phosphinic acid, 113–14

3-Aminopropyl phosphinic acid, 113–14, 126–27
Amitriptyline, 173
AMP, 46–53, 60, 63
  neurotransmitter-stimulated translocation of calmodulin and, 52
cAMP response binding protein (CREB), 47–48, 60, 298–99
  calmodulin-kinase II and, 47–48, 60
Amphetamine
  attention-deficit hyperactive disorder treatment and, 659
  autonomic nervous system and, 640
  behavior and, 658–66
  calmodulin translocation and, 52–54
  catecholamine system and, 640–58
  dopamine dynamics and, 649–58
  long-term changes in calmodulin content and, 57–58
  monoamine oxidase activity and, 649
  narcolepsy treatment with, 660–61
Amphatamine psychosis, 659–60, 662–63
Anabolic-androgenic steroids, 497–513
  adverse cardiovascular responses to, 498
  blood volume and, 508
  cardiac DHT receptor and, 499–500
  estrogen receptor and, 499–500
  glucocorticoid receptor and, 499–500
  hypertension and, 502–3, 506–7
  interactions with cocaine, 505–6
  lipids and, 506, 508–9
  metabolism of, 500
  mindset of self-administered users of, 497–98
  morbid events associated with, 509–13
  progesterone receptor and, 499–500
  testosterone, 497–513
  ventricular function and, 507–8
Androgen production
  $GABA_B$ receptor activation and, 130
Androgen receptors, 497, 499–502
  circulatory system and, 501–2
Analgesic-associated nephropathy, 435–36, 446, 455–61
  acetaminophen and, 459–60
  aspirin-phenacetin and, 455, 459–60
  phenacetin and, 455–60
  risk factors for, 436
Anemia
  hemolytic
    lead poisoning and, 411
  iron-deficient
    lead poisoning and, 411, 413–14, 416–17
Angiotensin
  hormone-mediated calmodulin translocation and, 52, 54
Antidepressants, 165–76
  benzodiazepines, 172–73
  heterocyclic, 174
  $5HT_2$ receptor
    antagonist to, 175–76
  $5HT_{1A}$ receptor
    partial agonists to, 173–74
  monoamine oxidase inhibitors, 165, 171–72
    nonselective, 171
    selective, 171–72
  nonselective aminergic neurotransmitter uptake inhibitors, 175
  selective serotonin uptake inhibitors, 165–71, 175
  tricyclic, 165–66, 175
Anti-ICAM-1 antibodies, 85
Anti-inflamatory agents
  mechanism of papillary necrosis from, 459
  nonsteroidal
    nonsalicylate, 436, 438
    renal effects of, 436
    renal toxicity of, 435–61
    salicylate, 436, 438
  renal pharmacodynamics of, 439–41
    prostaglandin synthesis and, 439
  renal pharmacokinetics of, 437–39
Anti-inflammatory agonists, 91–103
  calcitonin gene-related peptide, 99–102
  corticotropin-releasing factor superfamily, 92–93, 96, 98
  neurotensin, 98–103
  pituitary adenyl cyclase-activating peptide, 100
  vasoactive intestinal peptide, 99–103
  xenopsin, 98
Antimetabolites, 1, 4–6
  structural bases of nucleic acids and, 4
  synthesis of, 5
Antipsychotic drugs
  D_2 binding sites and, 294–95
  dopamine receptor antagonists and, 281
Antipsychotic therapy
  dopamine depletion with, 281
Antiviral drugs
  development of, 1, 16–20
  resistance to
    HIV, 149–60
Anxiety
  neuropeptide Y-related causal component for, 309, 336–38
Anxiolysis
  neuropeptide Y and, 310, 320
Apomorphine
  calmodulin translocation and, 52
Arachidonic acid cascade, 339–40
ARC-239, 249
Aromatic amino acid decarboxylase (AADC), 468–69
  benserazide and, 469
  carbidopa and, 469
Arsenate
  mimicry of phosphate by, 554–55, 565
Arthritis
  nonsteroidal anti-inflammatory agents for
    renal impairment risk and, 436, 451
  rheumatoid
    azthioprine for, 12
Aryl hydrocarbon hydroxylase (AHH)
  respiratory metabolism and cigarette-smoke-induced, 394
    human, 393
    rat, 392
Asparagine-linked glycosylation, 246–47
Aspartate, 477
Aspirin, 436, 438, 455–60
  phenacetin with analgesic-associated nephropathy and, 455, 459–60
Asthma treatment
  anti-inflammatories for, 91, 103
  terbutaline, 91
  theophylline, 91
Atrial natriuretic factor, 101
Atrial natriuretic polypeptide, 101
Attention-deficit hyperactive disorder, 659
Autocoids
  renal
    distribution of, 442
    effects of, 443–44
Autonomic nervous system
  amphetamine and, 640
Autonomic neuroeffector transmission, 39
Autopharmacology, 25–29, 31–33, 36–39
Azathioprine, 11–12
  development of, 11–12
  kidney transplant and, 11–12
  rheumatoid arthritis and, 12
3′-Azido-2′,3′-dideoxyadenosine (AZA)
  resistant HIV mutants and, 150
3′-Azido-2′,3′-didoxyguanosine (AZG)
  resistant HIV mutants and, 150
3′-Azido-2′m3′-dideoxyuridane (AZdU)

resistant HIV mutants and, 150
Azidothymidine (See AZT)
AZT
development of, 21
HIV resistance to, 149–60
reverse transciptase and, 151–60
AZT triphosphate
reverse transcriptase of HIV by
inhibition of, 151–56

B

Baclofen
evoked excitatory postsynaptic potentials and, 119, 124
$GABA_B$ receptor and, 109, 111–14, 117, 119–21, 124–33
therapeutic potential of, 130–34
asthma treatment, 131
clinical depression and, 132–33
decreased intestinal motility and, 131
memory acquisition and, 132
nonconvulsive epilepsy and, 133
Basal ganglia
dopamine and, 474–75
motor control and, 474–75
Basket interneurons, 120
Bayley Mental Development Index, 413
Benoxathian, 249
Benserazide, 469, 471, 479
Benzo(a)pyrene (BaP), 385, 396–97
Benzodiazepines, 172–73
treatment of depression with, 172–73
Benzopyran, 599
Benzothiadiazine, 599
B-HT 933, 243
Bicuculline, 109–10
Bone marrow transplantation, 574
Botulinum toxin
ADP-ribosylation of small G-proteins and, 210–12
Bradycardia
$\alpha_2$adrenoreceptor function and, 253
Bradykinin
inflammation and, 91, 95, 97
BRL 44408, 249
Bromfaromine, 172
Bromocriptine, 467, 479–80
Brush border membrane vesicles, 61
Brush border myosin I, 61–62
Burn-Rand hypothesis, 31
Buspirone, 173–74
Butenoic acid, 599

C

Cadmium
anion exchange mechanism of transport of, 557
Calcineurin, 45–49
neuromodulin and, 49
Calcitonin gene-related peptide (CGRP), 99–102, 620
$GABA_B$-mediated inhibition of, 115
Calcitriol, 52, 54, 58, 60–62
hormone-mediated calmodulin translocation and, 52, 54
long-term increases in calmodulin content and, 58, 60
Calcitriol-mediated Ca^{2+} uptake
intestine, 60–62
skeletal muscle, 60–62
Calcium channel conductance
$GABA_B$ receptor stimulation and, 120–23, 130
Calcium flux, 45, 53, 55, 63
Calcium metabolism
anion exchange mechanism and
lead and, 557–60, 563–65
Calmodulin, 45–63
adenylyl cyclase and, 49–50
hormonal activation of neurotransmitter-sensitive, 49–50
hormones and, 49–54, 60–63
psychoactive drugs and, 45, 52–54, 57–60
Calmodulin-binding proteins, 45, 52–57, 59, 62–63
Ca^{2+} concentration requirement for, 53
protein kinase A and, 53
protein kinase C and, 53, 55
Calmodulin-dependent cyclic nucleotide phosphodiesterase, 51–52
Calmodulin-dependent enzymes, 45–47
Ca^{2+}-mobilizing hormones and, 46–47
CA^{2+}-mobiliziing neurotransmitters and, 46–47
Calmodulin-dependent phosphorylation-dephosphorylation
hormone stimulation and, 47–49
Calmodulin-dependent protein kinase II, 59, 60
Calmodulin-dependent protein kinase III, 48, 60
elongation factor-2 phosphorylation and, 48
Calmodulin-kinase II, 47, 49, 55
substrates of, 47–48
Calmodulin translocation, 45, 52–57
calcium flux and, 53, 55
hormone-mediated, 52–54
neurotransmitter-stimulated, 52–57
cAMP and, 52
psychoactive drugs and, 52–54, 57
protein kinase C and, 53, 55
Cancer
bronchiogenic, 399
chromium and, 555
gene therapy for, 584–86
G-proteins and treatment of, 228
lung
susceptibility to, 394–95
nasal cavity, 399
nitrosamines and, 399
testosterone and, 399
Carbachol, 55–56
Carbidopa, 469, 471
Carboxylesterases, 387
human nasal tissue hyperplasia and, 387
respiratory metabolism and, 387
Carboxyl methylation, 201, 217–18
Carboxypeptidase A, 528–29
Catecholaminergic projections, 641
Catecholaminergic neurons, 641–42
Catecholamines
$GABA_B$-mediated inhibition of, 115, 125
Catecholamine system
amphetamine on
cellular mechanisms of action of, 640–58
cytoplasmic storage and, 648
transmitter release and, 642
transmitter storage and, 647
transmitter uptake and, 642–44
Catechol-O-methyltransferase (COMPT), 468–72
inhibitors of, 470–72
CGP 28014, 471–72
levodopa and, 470–72
nitecapone, 470–71
RO 40-7592, 471
Cell proliferation
calmodulin and, 45
C-flanking peptide of neuropeptide Y (CPON), 315
CGP 28014, 471–72
Chelating agents
adverse effect on brain lead and, 426
DCSA, 426
DMES, 426
DMPS, 426–28
DMSA, 417–22, 426
D-penicillamine, 417, 425–26
dimercaprol, 424–25
EDTA, 422–24
β-p-Chlorophenyl-GABA (See Baclofen)
Chlorpheniramine, 192
N-oxidation of, 192
Chlorpromazine
α_2-adrenorecptor subtype selectivity of, 249
Chlorpromazine
N-oxidation of, 189
Clozapine, 482

Cholera
  ADP-ribosylation of G-proteins and, 227, 229
Cholera toxin, 207–9, 211–12
  catalysis of ADP-ribosylation of G-proteins with, 208–9
Cholinergic link, 25, 31–34, 36, 39
  noradrenergic transmission and, 31–34, 36, 39
Chromium, 545, 555, 565–66
  carcinogenicity of chromium uptake reduction model of, 555
Chronic myelogenous leukemia gene therapy for, 584
α-Chymotypsin, 529–31
Circadian rhythms
  hypothalamo-pituitary-adrenal axis and, 355
  opiate-induced changes in, 353
Circulatory pathophysiology
  anabolic-androgenic steroids and, 501–2
Citalopram, 170–71
Clomipramine, 165
Clonidine
  as adjunct to general anesthesia, 265–66
  α_2-adrenoreceptor function and, 243, 253
  α_2-adrenoreceptor-mediated sedation and, 254–55
  analgesic properties of, 265
  antihypertensive activity of, 253–54
  attention-deficit hyperactivity and, 264–65
  constitutional growth delay treatment with, 266
  hypertension treatment with, 263
  opiate withdrawal and, 264
  inhibition of watery diarrhea with, 260, 267
Clozapine
  schizophrenia therapy and, 291
Cocaine
  calmodulin translocation and, 52
  elevated brain calmodulin and, 57–58
Cocaine paradox, 650
Cocaine withdrawal
  neuropeptide Y-related drugs for, 337–38
Coenzyme A (CoA)
  N-myristoylation and, 207
  thioester-linked palmitoylation and, 207
Coronary heart disease
  accelerated anabolic-androgenic steroid use and, 498–513
Corticoliberin (See Corticotropin-releasing factor)
Corticosterone, 354–55, 358–59
  opiate alkaloid withdrawal and, 358
Corticotropin-releasing factor (CRF), 91–103, 353–57, 362–65, 371
  anti-inflammatory, 91–103
  α-helical, 94, 99
  chronic exposure to opioids and, 357
  hypothalamic, 366–67
  synonyms of, 92
Corticotropin-releasing factor superfamily
  corticotropin-releasing factor, 91–103
  sauvagine, 92–93, 98
  urotensin I, 92–93, 98
Corticotropin-releasing hormone
$GABA_B$ receptor activation and, 130
CPON (See C-flanking peptide of neuropeptide-Y) (See cAMP response element binding protein)
CRH (See Corticotropin-releasing factor)
CRF-41 (See Corticotropin-releasing factor)
Cyclic nucleotide metabolism
  calmodulin and, 45
Cyclophosphamides, 395
Cyroheptadine, 166
Cysteine
  methylmercury mimicry of, 545–49
Cystic fibrosis
  gene therapy for, 587, 590–91
Cystic fibrosis transmembrane regulator, 587
Cytochrome P450
  ethanol and, 391
  lung and, 388–95, 400
    metabolites in human, 394–95, 400
  methylenedioxyphenol and, 391
  nasal tissue and, 385–87, 399–400
    procarcinogenic nitrosamines and, 385–86, 399–400
  tracheal epithelium and, 388
Cytochrome P450 monooxygenase, 439, 443, 445
  natriuresis and, 445
Cytokines
  endothelial dysfunction and, 76, 80
Cytomegalovirus
  drug-resistant mutants of, 149
Cytoskeleton
  actin, 56
  adducin, 56
  calmodulin and, 45, 47–49, 52–57, 59, 63

D

Defribotide, 85
Deprenyl, 467, 469, 487–88
Depression
  neuropeptide y and, 331
  serotonin and, 174
Desmin, 97
Diabetes
  non-insulin-dependent phentolamine and, 268
  α_2-adrenoreceptor and, 268
2,6-Diaminopurine, 6–7
  leukemia and, 6–7
  synthesis of, 6
Diazepam, 173
Didehydrodideoxythymidine (d4T)
  resistant HIV mutants and, 150
Dideoxycytosine (ddC), 150, 156, 160
Dihydroergocrytine, 260 5α-Dihydrotestosterone (5α-DHT), 499, 501
3,4-Dihyroxyphenylanine (See Levodopa)
Dimercaprol (BAL)
  chelation therapy for lead poisoning and, 409, 424–25, 427–28
meso-2,3-Dimercaptosuccinic acid (See DMSA)
DMPS
  chelation therapy for lead poisoning and, 426–28
DMSA
  chelation therapy for lead poisoning and, 417–22, 426, 428–30
  pharmacokinetics of, 418–22
    adverse effects of, 419–20
    dosage of, 420–21
    toxicity of, 421–22
Domperidone, 481–82
Dopamine
  calmodulin translocation and, 52–54
Dopamine
  basal ganglia and, 474–75
  motor control and, 474–75
  Parkinson's disease and, 467–89
Dopamine and cAMP-regulated phosphoprotein (DARPP-32), 48–49
Dopamine dynamics
  amphetamine-induced changes in, 649–58
Dopamine presynaptic receptors, 290–91
Dopamine receptors, 281–301, 467–89
  agonists of
    Parkinson's disease treatment and, 479–81
  amino acid sequence comparison of, 288
  antagonist of
    Parkinson's disease treatment and, 481–82
  distribution of, 295,–26, 474
    CNS, 295–96
    peripheral, 296–97
    tissue, 295
  gene organization of, 285–86
  G-protein coupling and, 287
  glycosylation sites of, 286
  human disorders and, 300

ligand binding, 286–87
molecular characterization of, 283–85
neuroleptics and, 282
polymorphism in, 299
pseudogenes of, 299–300
regulation of gene expression of, 294
selectivities of subtypes of, 289–300
sequence of, 285

E

Eating disorders
neuropeptide Y and, 331, 335–36
Edema, 91–103
brain, 94, 96
carrageenan-induced, 95, 101–3
heat-induced, 94, 98
muscle, 94
prevention of corticotropin-releasing factor and, 91–103
pulmonary, 93–94, 96, 100, 103
EDTA
chelation therapy for lead poisoning and, 409, 422–24, 427–30
distribution, 423
dosage, 423–24
β-Endorphin, 94–95
proopiomelanocortin-derived peptide, 95
Endothelial dysfunction, 71, 75–85
neutrophil-induced, 80–82
prevention of, 76–82
cytoprotective agents for, 76–78, 84–85
hypoperfusion states and, 82–84
inhibitory neutrophils, 80–85
inhibition of pro-inflammatory mediators, 78, 85
leukotriene B_4 and, 80–82, 85
recombinant human dismute (hSOD) and, 80, 85
reperfusion injury and, 75–85
Endothelin, 73, 622
Endothelium, 71–85
expression of ligands for adhesive molecules by, 74
ischemia-reperfusion and, 75–85
vasoconstrictors released by, 73–74
endothelin, 72
platelet-activating factor, 73–74
superoxide radicals, 74–76
vasodilators released by, 71–72
adenosine and, 72
nitric oxide and, 72, 78, 84–85
PGI_2, 71–72
Endothelium-derived hyperpolarizing factor, 619–20
Endothelium-derived relaxing factor (EDRF)
discovery of similarity to nitic oxide, 39
preservation of endothelial function and, 74–75, 79, 81, 84–85
(See also Nitric Oxide)
Enkephalin
calmodulin translocation and, 52, 54
(D-AlaZ,D-Leu5)- (DADLE), 361–63
(D-AlaZ,*N*-Me-Phe4,Gly-ol)- (DAMGO), 360, 363
(D-PenZ,D-Pen5)-, 361,367
Enteramine, 27
Epinephrine
human platelet aggregation and, 258
lipolysis and, 263
prejunctional α_2-adrenergic receptor activationby, 256
pulmonary edema and, 93, 96
Epoxyeicosatrienoic acid (EETs), 442–44
Estradiol, 500–1
Estrogen
α_2-adrenoreceptor function and, 261–62
androgen receptors and, 499–502
calmodulin content and elevated, 58–59
calmodulin translocation and, 52–54
Ethylene diamine tetraacetic acid (See EDTA)
Ethylketocyclzocine, 361
Ethylmethylsulfide, 190
Evoked excitatory postsynaptic potentials
baclofen and, 119, 124

F

Familial hypercholesterolemia gene therapy for, 586, 592
Feeding behavior
neuropeptide Y and, 309–10, 335–36
Feline immunodeficiency virus (FIV), 160
Fenbufen, 437–38
Fengabine, 173
Fenoldopam, 473
Fenoprofen
acute interstitial nephritis and, 454–55
Flavin-containing monooxygenases (FMO), 179–95, 395
classification of mammalian, 182, 183–84
in freshwater fish, 189
induction of, 190–91
isoforms of, 179, 181–89
naming of, 184–88
substrate specificies of, 185–88
in marine elasmobranchs, 189
in marine invertebrates, 189
metabolism of xenobiotics and, 179–80, 191–95
Flavoenzymes (See Flavin-containing monooxygenases)
Flurbiprofen
renal insufficiency and, 449–51
Fluvoxamine, 170
Fluoxetine
antidepressant, 166–69, 171
bulimia nervosa treatment with, 171
Foscarnet, 150
Friedel-Crafts acylation reaction, 96
Funaltrexamine, 357
Furosemide, 453

G

GABA
$GABA_B$-mediated inhibition of, 115
β-hydroxy-, 113–14
presynaptic inhibition and, 109
synaptically mediated inhibition and, 109
$GABA_A$ receptor, 109–10, 112, 114, 117–20
agonists
isoguvacine, 110
THIP, 110
antagonists
bicuculline, 109–10, 114
bicyclophosphates, 114
picrotoxin, 110, 114
$GABA_B$ receptor, 109–36
activation of consequences of, 129–30
adenylyl cyclase of coupling to, 127–28
agonists, 112–14
baclofen, 109, 111–14
antagonists
phaclofen, 109, 114–17, 119, 126
saclofen, 109, 114–17
calcium channel conductance and, 120–23
G-proteins and, 119, 122, 127–28
heterogeneity of, 112–13
long-term potentiation and, 125–26, 130
potassium channel conductance and, 123–24
presynaptic inhibition and, 109–10, 119–20, 124–26
structure of, 134–35
therapeutic potential of ligands of, 130–34
$GABA_B$ receptor sites, 117–21
G-proteins and, 119
Galanin, 621–22
GAP, 205, 227
Gastric acid secretion

GABA$_B$ receptor activation and, 130
Gastrointestinal tract motility
α_2-adrenoreceptor and, 259–60, 267
Gastrointestinal tract secretory function
α_2-adrenoreceptor and, 259–60, 267
GDP, 203
GDP dissociation inhibitors (GDIs), 205, 227
GDP dissociation stimulators (GDSs), 205, 227
GDP-DTP exchange proteins (GEPs), 203–4
Gene transfer therapy, 573–92
adenosine deaminase (ADA) protocol, 581–82
adenoviral vectors for, 587–88, 590
cancer treatment and, 584–86
clinical marker protocols for, 576–77
familial hypercholesterolemia and, 586
hemophila B and, 586–87
HIV infection and, 584, 589–90
nonviral vectors for, 588–89
retroviral vectors, for, 575–76
review process for protocols for human, 576–79
viral vectors for, 587–88
Gepirone, 173
Glucocorticoid hormones
morphine and, 356–57, 365–66
Glucose-6-phosphate dehydrogenase (G-6-Pd), 398–99
Glutamate
GABA$_B$-mediated inhibition of, 115
Glutamate, 477
Glutathione (GSH), 387
Glutathione tranferases (G-SH-T), 395, 398
Glyburide
ATP-sensitive potassium channels and, 597, 600–14
Glycosylation
N-linked, 322
GMP, 203
cGMP, 203
Gonadotropin-releasing hormone
calmodulin translocation and, 54
Gout
allopurinol and, 12–13
G-protein-coupled receptor genes
superfamily of, 244
G-protein receptors
dopamine receptors and, 281–83, 293–94, 299, 301
G-protein-coupled receptor superfamily, 282–83, 310, 321, 327
dopamine receptors and, 282–83
neuropeptide Y and, 310
G-protein-related diseases, 227–30
bacterial toxins and
ADP-ribosylation of, 227–28
prenylation and
defect in, 228
G-proteins
adenylyl cyclase and, 127–28
calcium channel conductance and, 122
GABA$_B$ receptor and, 119, 122, 127–28
G-proteins
Albright hereditary osteodystrophy and, 227
hereditary obesity in mice, 227
ATP-sensitive potassium channels and, 623–24
covalent modifications of, 201, 205–30
acylation, 201, 205–7, 221–24
ADP-ribosylation, 201, 204–12, 227–29
pharmacological significance of, 227–30
phosphorylation, 226–29
prenylation of, 201, 205, 212–18, 228
genetic defects in
diabetes and, 227
pseudohypoparathyroidism and, 227
heterotrimeric, 202–3, 205, 208–10
stimulatory, 208
Growth hormone releasing factor, 255
Growth hormones
α_2-adrendoreceptors and, 255, 266
Growth retardation
lead poisoning and, 410–12
GTP, 203, 220

H

Hamster cheek pouch preparation, 91, 95, 103
Hemodynamics
glomerular, 441–61
acute renal failure and, 446–54
analgesic-associated nephropathy and, 435–36, 446, 455–61
kidney failure and, 435, 446–61
nonsteroidal anti-inflammatory drugs and, 441–61
Hemophilia B
gene therapy for, 586–87
Hepatocellular transplantation
gene transfer and, 584
Herpes simplex virus
acyclovir and, 17–20
drug-resistant mutants of, 149
Herpesvirus, 16–20
Hexamethonium, 28
HIV
AZT-resistant, 149–60
drug resistant mutants of, 149–60
reverse transcriptase of, 151–56
HIV gene
mutations in
resistance to AZT and, 153–56
Hormone-mediated calmodulin translocation, 52–54
4a-Hyrdoperoxyflavin, 185
N-α-Hydroxyalkyl, 528–29
6-Hydroxydopamine
α_2-adrenoreceptor function and, 253
Hydroxyeicosatetraeonoic acids (HETEs), 443–44
β-Hydroxy GABA, 113–14
Hydroxysteroids, 358
5-Hydroxytryptamine (See Serotonin)
Hyperactivity
attention-deficit
chlonidine and, 264
Hypertension
α_2-adrenoreceptor agonists and, 243, 263
potential neuropeptide Y-related drugs for, 331–35, 341
steroid-induced, 506–7
testosterone and, 502–3, 506–7
Hypothalamus-pituitary-adrenal axis, 92, 353–75
basal activity on
endogenous opioids and control of, 370–72
circadian rhythms of hormone release and, 355
macro-signal transduction system role of, 354
morphine-induced activation of, 356–57
opioids and
effects of, 353–75
endogenous, 370–72
Hypoxia
ATP-sensitive potassium channel and, 624
Human erythroleukemia, 339
Human immunodeficiency virus (See HIV)
Human recombinant lipocortin 5 (hrLC5), 100

I

Ibuprofen
renal toxicity and, 436, 438–39, 451
Idazoxan, 243, 268
Imapramine
N-oxidation of, 189
4-Imidazolidinone, 528, 531
Imiloxan, 249
Immediate-sustained response, 92
Immediate-transient response, 91–92
Immunosuppression
azathioprine and, 11–12

6-mercaptopurine and, 11–12
transplantation and, 10–12
Inflammation
neurogenic, 94
peptides as agonists, 91–103
(See also Inflammatory mediators, Peptides, anti-inflammatory)
Inflammatory mediators
antagonists of, 91–103
bradykinin, 91, 95, 97
histamine, 91–92, 95, 99, 102
leukotrienes, 91, 102
platelet-activating factor, 91, 101
serotonin, 96, 102
Influenza A virus
drug-resistant mutations of, 149
Inhalants
dosimetry of, 384–85, 400
drug delivery via, 396
lipophilic compounds, 384–85, 396
lipophilic/retention relationships in, 396
xenobiotics and respiratory tract metabolism of, 383–84
Inhibitory postsynaptics potentials
phaclofen and, 119
Injury
vascular permeability and, 91–103
Inosinic acid, 8
Insulin-like growth factor 1 (IGF-1)
lead poisoning and, 411
International Congress of Pharmacology, 41–42
Intrabronchial drug delivery, 396
Internasal drug delivery, 396
Ion transport
calmodulin and, 45
Ionic mimicry, 545, 553–67
between lead and calcium, 557–61
between manganese and calcium, 560
oxyanions and, 553–56
Ipomeanol, 393
Ipsapirone, 173–74
Ischemia-reperfusion, 72–85
endothylial dysfunction and, 75–85
endothelin and, 73
nitric oxide and, 72
PGI_2 and, 71–72
Ischemia-reperfusion neutrophils, 71–72, 76, 78, 80–85
adenosine and, 72
cytokines and, 80
endothelial dysfunction and, 80–85
inhibiting, 80–82
leukotrienes and, 80
monoclonal antibodies and, 80–82
nitric oxide and, 72 PGI_2 and, 71–72

K

Keratin, 97
Ketoprofen, 437–38
Ketorolac, 437–38
Kidney
molecular mimicry of toxic metal ions and methlmercury uptake and, 549, 562
Kidney failure
acute
nonsteroidal anti-inflammatory agents and, 446–54
chronic
nonsteroidal anti-inflammatory agents and, 455–61

L

Lamin, 97
Large neutral amino acids (LNAA), 470
Lead
accumulation in synaptic regions of brain, 563
anion exchange mechanism of transport, 556
calcium metabolism and, 557–60, 563–65
voltage-dependent Ca^{2+} channels and, 563
Lead burden
indices of, 414–15
Lead poisoning
Bayley Mental Development Index and, 413
behavioral effects of, 412–14
chelation therapy for, 409, 417–30
efficacy of, 428–30
children's growth retardation and, 410–12
hemolytic anemia and, 411
decreased insulin-like growth factor 1 (IGF-1) and, 411
iron-deficient anemia and, 411, 413–14, 417–17
cognitive effects of, 412–14
elimination of environmental sources of, 416
nutrition and treatment of, 416–17
reduction of lead retention through, 416–17
pregnancy and, 413
psychomotor development index and, 413
Lead adhesion molecules (See Selectins)
Leishmaniasis, 15–16
allopurinol and, 15–16
Leukemia, 1, 6–10, 12, 584
chronic myelogenous gene therapy for, 584
2,6-diaminoprine and, 6–7
6-mercaptopurine and, 8–10
myelocytic, 6, 9–10
thioguanine and, 8–10
Leukocytes
activation of, 74, 79
vascular endothelium and, 79
Leukocytosis
carrageenan-induced, 100
Leukotriene B_4, 75, 80, 84–85
Leukotrienes, 91, 102
Levcromakalim, 597, 611
Levodopa
metabolism of, 468–69
inhibitors of, 469
Levorphanol, 357, 359, 369
Lipocortin-1, 101
Lipocortin-2, 101
Lipolysis
adrenoreceptor-mediated regulation of, 262–63, 268–69
pinephrine and, 263
yohimbine and, 269
5-Lipoxygenase inhibitors, 85
Locomotion
nigrostriatal pathway and, 282
Locus coeruleus
α_2-adrenoreceptor function in, 254–55, 263–64
suppression of opiate withdrawal and, 263–64
Lofepramine, 175
Long-term potentiation
$GABA_B$ receptor activation and, 125–26, 130, 132
Lordosis
$GABA_B$ receptor activation and, 130
Lung
clearance of lipophilic compounds, 384–85
cytochrome P450 in, 388–95
uptake of inhalants, 384
xenobiotics and respiratory tract metabolism and, 383–400
Luteinizing hormone
$GABA_B$ receptor activation and, 130
Lymphocyte-based protocols for gene therapy, 573

M

Melanocyte-stimulating hormone, 101–2, 130
α-, 101–2
$GABA_B$ receptor activation and, 130
6-Mercaptopurin (6-MP)
development of, 8–12
immunosuppression and, 10–12
leukemia treatment and, 8–10
transplantation and, 10–12
Mesocorticolimbic pathway, 282
Methadone, 357, 368
Methapriline, 192
N-oxidation of, 192
Methionine, 546–50
N-Methyl-D-aspartate (NMDA), 48,362
N-Methyl-D-aspartate receptors
dephosphorylation of DARPP-32 and, 48

a-Methyldopa, 263
3-0-Methyl-DOPA (3-OMD), 470, 472
Methylenedioxyphenol (MDP)
  respiratory metabolism and, 385, 391
Methylmercury
  mimicry of cysteine by, 545–49
    renal uptake by, 549
    uptake into astrocytes by, 548–49
    transport into brain by, 546–48
Methylmercury-cysteinyl glycine
  mimicry of acylglycines by, 552–53
Methylmercury-glutathione complexes
  mimicry of glutathione and oxidized glutathione by, 550–51
    kidney and, 551
    liver and, 550–51
N-Methylmorphine, 363–64
N-Methyl-4-phenylpyridinium (MPP^+)
  N-oxidation of, 192
1-Methyl-4-phenyl-1,2,3,6-tetrahydrapyridine (See MPTP)
Microtubule-associated protein-2 (MAP-2)
  calmodulin and, 45
Moclobemide, 172
Molecular mimicry
  between methylmercury-cysteine complex and methionine, 546–50
  between methylmercury-glutathione complex and conjugates of glutathione and oxidized glutathione, 550, 561
  between methylmercury-cysteinylglycine and acylglycines, 552–53
  oxyanions and, 553–56
Moloney murine leukemia virus (MoMuLV), 575
Monoamine oxidase (MAO)
  deprenyl and, 469, 487–89
  type B (MAO-B), 483, 487
Monoamine oxidase inhibitors
  antidepressant, 165–66, 169, 171–72
  dopamine metabolism and, 172
  nonselective, 171
  selective, 171–72
  tyramine metabolism and, 171–72
Monoclonal antibodies
  ischemia-reperfusion neutrophils and, 80–82
Monooxygenases
  flavin-dependent, 179–95
    metabolism of xenobiotics and, 179–80, 191–95
  P450-dependent, 184
Morphiceptin, 360
Morphine
  calmodulin content and long-term increase in, 57, 59
  calmodulin translocation and, 52
  hypertrophy of the adrenal gland caused by, 354–59
  mechanisms of action of, 366–68
  stimulation of ACTH release by, 356–57
  stimulation of glucocorticoid hormones by, 356–57
  stimulation of HPA axis by, 356–57
Movement disorders
  dopamine receptors and, 282
MPTP
  metabolism of flavin-containing monooxygenases and, 191–92
  N-oxidation of, 191–92
MPTP toxicity
  Parkinson's disease and, 483, 487
MR-2034, 361, 363
Muscimol, 113
Mutation
  drug-induced HIV and, 149–60
Myristoylation, 206–7, 221–24
  heterotrimeric G-proteins and, 222–24
Myocardial hypertrophy, 497
Myosin light chain kinase, 47, 53
  phosphorylation of insulin and, 47
Mystixin
  anti-inflammatory properties of, 91, 96–98, 103

N

Nabumetone, 437–38
Nalorphine, 357–58, 369, 371, 373
Naloxone, 357–61, 363, 365, 367, 370
Naltrexone, 359
Naphthalene, 389
Naproxen, 438
Narcolepsy
  treatment of amphetamine and, 660–61
Natriuresis
  prostaglandin and, 445
Nefazodone, 175–76
Nephritis
  interstitial, 435–41, 446, 454–55, 461
    fenoprofen and, 441, 454–55
    fenoprofen-associated, 454–55
    nonsteroidal anti-inflammatory agents and, 435–41, 446, 454–55
Nephron
  distribution of renal autocoids within, 442–43
  juxtaglomerular apparatus of, 441
  structure of, 441–46
Nephropathy
  analgesic-associated, 435–36, 446, 455–61
    acetaminophen and, 459–60
    aspirin-phenacetin and, 455, 459–60
    phenacetin and, 455–60
    risk factors for, 436
Nerve growth factor
  long-term increases in calmodulin content and, 58, 60
  neuromodulin and, 49
Neuroblastoma
  relapse-refractory gene therapy for, 583–84
Neuroendocrine function
  opiate-induced changes in, 353
Neurogranin, 45, 55
Neuromodulin, 45, 49, 55–56
  calcineurin and, 49
  nerve growth factor and, 49
Neuropeptide tyrosine (See Neuropeptide Y)
Neuropeptide Y (NPY), 309–42
  affective disorders and, 331, 335–36
  anxiolysis and, 310
  cotransmission and, 309
  dopaminergic mechanisms and reciprocal feedback regulations,338
  eating behavior and regulation of, 310, 331, 335–36
  eating disorders and, 331, 335–36
  gene expression of, 315–16
  G-protein-coupled superfamily of conductors and, 310
  hypertension and, 331–35, 336–38
  pituitary hormone release and, 336
  renin-angiotensin system and, 332
  vasoconstriction and, 309
  Y1 receptor of, 316–22
    distribution in brain of, 320
    ligand signal epitopes of, 320–21
    molecular biology of, 321
    vasoconstriction and, 319, 340
    vascular smooth muscle and, 318–19
  Y2 receptor of, 316–18, 322–25, 328–30, 338–42
    distribution in brain of, 323
    ligand signal epitopes of, 324–25
    molecular biology of, 325
    peripheral nervous system and, 322–25
    vasoconstriction-related, 323
  Y3 receptor of, 318, 325–30, 338–42
    bovine clone of, 327

cardiovascular regulation and, 325–26
distribution in brain, 325
ligand signal epitopes of, 327
periphery and, 326–27
Neuropeptide Y-like immunoreactivity, 314, 334
Neuropeptide Y receptor agonists, 338–41
Neuropeptide Y-related drugs, 331–35
affective disorders and, 331, 336–37
eating disorders and, 335–36
hypertension and, 331–35
Neuropeptide Y-related peptides, 309–42
distribution of, 314
gene expression of, 315–16
structure of, 311–13
Neuropeptide-Y signal transduction, 329–30
Ca^{2+} levels and intracellular, 330
Neurotensin
anti-inflammatory properties of, 98–103
Neurotensin-like peptides
anti-inflammatory properties of, 98–103
Neurotransmitter release
inhibition of α_2-adrenergic function and, 255–56
Neurotransmitter-stimulated calmodulin translocation, 52–57
Neutrophil-induced endothelial dysfunction, 80–82
Nicotine
N-oxidation of, 179
Nigrostriatal pathway, 282
Nitecapone, 470–72
Nitrergic transmission
early research, 39–40
Nitric oxide, 39–40, 71–78, 84–85, 443–46
calcium and, 72
calmodulin and, 72
early research on, 39–40
epithelial dysfunction and prevention of, 76–78, 84–85
ischemia-reperfusion states and, 72
renal dynamics and, 443–46
Nitric oxide synthase, 72, 83
Nitrosamines
nasal cavity tumors and testosterone and 397, 399
procarcinogenic nasal P450s and, 385–86
tobacco-specific, 400
Nonviral vectors
gene therapy and, 573, 588–89
Noradrenaline
^{3}H-, 110
Noradrenergic transmission, 25, 31–34, 36, 39
cholinergic link in, 31–34, 36
Norepinephrine, 54, 243, 251, 254–56, 261, 319
α_2 adrenoreceptor and, 54, 253, 251, 254–56, 261
inhibition of locus coeruleus firing and, 254
calmodulin translocation and, 54
constriction of urethra and, 261
control of affective state and 254–55
prejunctional α_2-adrenergic receptor activation by, 256
vasoconstriction and, 257, 319
N-oxidation, 179–95
of chlorpheniramine, 192
of chlorpromazine, 189
of impramine, 189
of methapriline, 192
of MPP^+, 191–92
of MPTP, 191–92
of organic sulfur xenobiotics, 193–94
of nicotine, 179
of senesionine, 192
of stobadine, 192
of thiocarbamides, 185–88
of trialkylamines, 191
of trimethylamine, 179
of zimeldine, 192
Nuclear lamins, 213
Nucleic acids, 3–21
antimetabolites, 4–6
Nucleosides
antiretroviral, 150, 156, 160
Nucleus of the tractus solitarius (NYS)
neuropeptide Y-related peptides and, 325–26, 335

O

Obesity
lipolysis and yohimbine administration and, 269
Olfaction, 202, 397–99
exposure of brain to inhalants via, 398–99
glucose-6-phosphate dehydrogenase (G-6-Pd) and, 398–99
G-proteins and, 202
Opiate alkaloids, 353, 356–66
loci of action, 363–66
mechanisms of action of, 366–68
nonselective, 356–59
acute administration of, 356–57
acute dependence on, 359
chronic administration of, 357–58
codeine, 357
levorphanol, 357
methadone, 357
morphine, 52, 57, 59, 354–59, 366–68
normorphine, 357
stimulation of HPA axis by, 357–58
withdrawal of, 358–59
selective, 359–66
stimulation of HPA axis by, 359–63
Opioid peptides
endogenous, 354, 370–72
nonselective, 359
stimulation of HPA axis by, 359
selective, 359
stimulation of HPA axis by, 359–66
Opioids
endogenous, 354, 370–72
control of basal activity on HPA axis and, 370–72
hypothalmo-pituitary-adrenal (HPA) axis and, 353–75
loci of action of, 363–66
mechanism of action of, 366–68
Oxyanions, 545, 553–56
phosphate, 553
sulfate, 553
Oxygen-derived free radicals, 74–76
Oxygen radical formation
pathogenesis of Parkinson's disease and, 485–87
Oxymetazoline, 247–50
α_2-adrenoreceptor subtype affinity for, 247–48

P

Palmitoylation
of small G-proteins, 224
Pancreatic peptide Y (PY), 311, 313
Pancreatic polypeptide (PP), 311, 313–15, 321, 325, 328, 338,341
Parathyroid gland, 296–97
Parkinsonism
MPTP-induced, 479
Parkinson's disease, 281–82, 294–95, 301, 467–89
dopamine agonists used to treat, 479–81
dopamine antagonists as adjuncts to treatment of, 481–82
dopamine depletion and, 281
dopamine-replacement therapy for, 281
pathogenesis of, 484–85
deficiencies in mitochondria, 484
oxidative stress, 485–86
glutamate receptor antagonists and, 488
retarding progression of, 483–84
Paroxetine, 170
PCP/NMDA receptor, 353, 362–63
D-Penicillamine, 409, 417, 425–26
chelation therapy for lead poisoning and, 417

Peptide delivery
  prodrugs for, 521–39
Peptides
  anti-inflammatory, 91–103
    atrial natriuretic factor, 101
    atrial natriuretic polypeptide, 101
    calcitonin gene-related peptide (CGRP), 99–102
    corticotropin-releasing factors, 911–3
    lipocortin 1 and 2, 101
    α-melanocyte-stimulating hormone, 101–2
    mystixins, 91, 96–98
    neurotensin family of, 98–103
    pituitary adenyl cyclase activating peptide, 100
    synthetic, 96–98
    uteroglobin, 100–1
Peptide YY (PYY), 311–19, 322–29, 331, 338, 341–42
Perflurochemical, 85
Pergulide, 480
Permeability, 91–103, 521, 531–34
  peptide delivery and, 521, 531–34
  vascular, 91–103
    anti-inflammatory peptide agonists and, 91–103
    immediate-sustained response and, 92
    immediate-transient response and, 91–92
Pertussis toxin
  catalysis of ADP-ribosylation of G-proteins with, 209–10
PGI_2 (See Prostacyclin)
Phaclofen
  $GABA_B$, receptor and, 109, 114–17, 199, 126
Pharmacokinetics, 9–10, 20
  early research in, 9–10
Phentolamine, 243, 255, 257, 260, 268
  insulin release and, 260
Phenylbenzoquinone, 94
Phosphatidyl inositol, 127–28, 130
Phosphorylation, 201, 205–7, 225–27, 229
  of heterotrimeric G-proteins, 225–26
  of small G-proteins, 226–27
Phototransduction cascade
  G-protein-mediated, 202–3
Piroxicam, 451
Pituitary adenyl cyclase-activating peptide, 100
Pituitary-adrenal axis, 94
  adrenocorticotropic hormone and, 94
  human β-endorphin and, 94
Pituitary hormone release
  neuropeptide Y and, 336
Platelet activating factor (PAF), 73–80, 85–91, 101, 398
  endothelial dysfunction and, 73–76, 78–80
  inflammation and, 91, 101
  receptor antagonists, 78–80, 85
  respiratory tract metabolism and, 398
Platelet aggregation
  ADP and, 258
  α-adrenoreceptor and, 258–59
  clonidine and, 258
  epinephrine and, 258–59
  prazosin and, 58
  thromgin and, 258
  yohimbine and, 258
Polymorphonuclear leukocyte adherence, 72
Polypeptide metabolism
  drug delivery and, 525,-31
Potassium channel conductance
  neuronal response to $GABA_B$ activation, 123–24, 130
Potassium channel inhibitors
  adrenoreceptor agonists, 611–12
  ATP-sensitive, 606–15
  binding sites of, 608–11
    central nervous system, 610–11
  calmodulin antagonists, 614
  glyburide, 597, 600–11
  hypglycemic, 606–11
Potassium channel openers
  ATP-sensitive, 598
  penzothiadiazine, 599
  butenoic acid, 599
  cardiac muscle and, 601–2
  hypothalmus and, 603–4
  levcromakalim, 611–12
  neurons and, 602–3
  pancreatic β-cell/insulinoma cells and, 600–1
  pyridine, 599–600
  pyrimidine, 599
  site of action of, 618–19
  skeletal muscle and, 602
  smooth muscle and, 604
Potassium channels
  ATP-sensitive, 597–624
    hypoglycemic domain of, 618
    ligand-receptor–G-protein interactions and, 619–24
    nucleotide diphosphate site of, 617–18
    phosphorylation site of, 616
    protein kinase C and, 624
    regulatory site of, 616–18
    site of action of channel openers of, 618–19
Prazosin
  $α_2$-adrenoreceptor and, 243, 247, 249–51, 260
  morphine and, 368
Prenylation, 201, 205, 212–18, 228
  α-carboxyl methylation and, 217–18
  defect in, 228
  function of, 219–21
  G-protein-mediated signal transduction and, 201, 205, 212–18,228
  proteolysis and, 216–17
Presynaptic inhibition
  GABA-mediated, 109–10, 119–20, 124–26
Progesterone
  anabolic-androgenic steroids and, 499–505
  long-term increase in calmodulin content and, 58–59
  uterine $α_2$-adrenoreceptors and, 262
Prolactin-releasing factor
  $GABA_B$ receptor activation and, 130
(+)-4-Propyl-9-hydroxynaphthoxazine (PHNO), 48
Prostacyclin (PGI_2), 71–72, 74–78, 84–85, 98–99
  adenylate cyclase and, 72
  anti-inflammatory actions of, 98
  preservation of endothelial function and, 74–78, 84–85
  pro-inflammatory actions of, 99
Prostaglandin
  hypoxic insult to the kidney and, 443
  kidney failure and, 446
  natriuretics and, 445
  pro-inflammatory vs. anti-inflammatory, 100
    nonsteroidal anti-inflammatory agents and, 439
Prostaglandin synthase, 395
Prostanoids
  $GABA_B$-mediated inhibition of, 115
Prostate gland
  $α_2$-adrenoreceptor function and, 261
Protein extravasation, 92–93
Protein kinase A, 53
Protein kinase C, 49, 53, 55–56, 624
  ATP-sensitive potassium channel regulation and, 624
  calmodulin-binding proteins and, 55–56
Protein phosphorylation-dephosphorylation cascades, 45, 47–49
  calmodulin-dependent, 47–49
Proteolysis, 216–17, 535
Psychoactive drugs, 45, 52–54, 57–60
  calmodulin content and long-term changes in, 57–60
  neurotransmitter-stimulated calmodulin translocation and, 52–54
Psychomotor development index, 413
Psychostimulant withdrawal syndrome
  neuropeptide Y-mediated causal component of, 336
Purinergic nerves, 29

Purinergic theory of transmission, 37
Purines, 11, 3, 5–8, 13–21
  adenine, 5–7, 17
  guanine, 5–8, 17
  hypoxanthine, 5, 8
  thiation of, 7–8
Pyridine, 599–600
Pyrimidine, 599

R

^{3}H-Rauwolscine
  α_2-adrenoreceptor and, 243, 247–50, 256, 267–68
  binding sites for
    renal cortex and, 257
  Raynaud's phenomenon and, 267
Reperfusion, 71–85
  endothelial dysfunction and, 75–85
    prevention of, 77–85
  (See also Ischemia-reperfusion)
Reserpine
  α_2-adrenoreceptor function and, 253
  early studies, 25, 31
Respiratory tract metabolism, 385–95
  alveolar, 388–95
  bronchiolar, 388–95
  carboxylesterases, 387
  cigarette smoke, 394–95
  cytochrome P450, 385–95
  hormonal influence on, 397–98
  inflammation and, 397–98
  nasal, 385–88
  nasopharyngeal and tracheal, 388
  rhodanase, 388
  whole lung, 388–95
Retinitis pigmentosa, 228
Retroviral vectors, 573, 575–76, 584
  Moloney marine leukemia virus, 575
Reverse transcriptase, 149, 151–60
  HIV and, 151–60
  HIV-1 gene for
    resistance to AZT and mutations in, 151–56
Reverse transcriptase inhibitors, 151–60
  nonnucleoside, 156–58, 160
  AZT, 151–60
Rhinovirus
  drug-resistant mutants of, 149
Rhodanese, 388
Rhodopsin, 283, 286
RO 40-7592, 471

S

Saclofen, 109, 114–17
Sauvagine, 92–93, 98
Schizophrenia, 281, 291, 294–95, 300, 659–60, 666
  dopamine D_4 receptor connection to, 291
  similarity to amphetamine psychosis, 659–60
Second messenger pathways
  dopamine D_1 and D_2 receptors and, 291–93
Second messenger system
  G-proteins and, 202
Seizures, 136
Selectin, 74
Self-sustained sequence replication, 154
Senecionine, 192
Sequence amplification, 152–54
Serotonin
  antidepressants and, 165–76
  depression and, 174
  early research on, 26–28
  $GABA_B$-mediated inhibition of, 115
  inflammation and, 96, 102
Serotonin syndrome, 166
Serotonin uptake inhibitors
  nonselective, 165
  selective, 165–71, 175
    antidepressant, 165–71, 175
    bulimia nervosa treatment with, 171
    obsessive-compulsive disorder treatment with, 171
Sertraline, 169
Serum vasoconstrictor, 25–27
Severe combined immune deficiency (SCID) diseases
  gene therapy for, 576–77, 581
Sigma receptor, 353, 362–63
Signal transduction
  ACTH release and, 354
  corticotropin releasing factor and, 354
  G-protein-mediated
    molecular mechanism of, 201–3
  hypothalmo-pituitary-adrenal axis and, 354
  neuropeptide Y and, 329–30
SK&F 104856, 249, 251–52
Somatostatin, 115, 255, 622
  $GABA_B$-mediated inhibition of, 115
Solubility
  peptide delivery and, 523–25
    N-alkylation and, 524
    thiol functionality and, 524
S-oxidation, 179, 188–89
Stability
  peptide delivery and, 521, 525–31
    nasal route of, 526
    protective degradation of polypeptides and, 526
Steroid-binding receptors, 501–2
Stevens-Johnson syndrome, 427
Stobadine
  N-oxidation of, 192
Striatal neurons
  subpopulations of, 475–76
Substance P, 115, 125, 476
  $GABA_B$-mediated inhibition of, 115, 125
Sulfonylurea drugs
  binding sites of, 608–12
  central nervous system, 610–12
  glyburide, 597, 600–11
  hypoglycemic, 606–11
Sulindac, 437–38, 451, 453, 461
Superoxide dismutase (SOD), 74, 80, 85
  preservation of endothelial function and, 80, 85
  recombinant human, 80
Superoxide radicals, 74–76, 78, 80, 84
Sydnonimines, 77
Sympathetic nervous system
  neuropeptide Y-related peptides and, 309–42
    circulating concentrations of, 333–34
Sympathomimetic amines, 31–32
Synaptic inhibition GABA-mediated, 109
  glycine-mediated, 109

T

Tarprostene, 77, 80
Taste
  G-proteins and, 202
Terbutaline, 91
Testosterone, 497–509
  elastin-associated microfibrils and, 505
  endometrial progesterone receptors and, 499–500
    estradiol and, 500
  hypertension and, 502–3
  myocardial remodeling after injury and, 503–5
Theophylline, 91
Thiation
  purines and, 7–8
Thiocarbamates
  oxidation of, 185–88
Thioguanine (6(TG), 8–10
Thiouric acid, 12
Thrombin
  platelet aggregation and, 258
Thromboxane synthetase inhibitors, 85
Tianeptine, 171
Tizanidine, 264
Toxic metal ions, 545–57
Tranforming growth factor-β, 81, 85
Transplantation
  immunosuppression and, 1, 8, 10–12
    azathioprine and, 11–12
    6-mercaptopurine and, 11–12
Trazodone, 175–76
Triazolobenzodiazepines, 172–73
Tricyclic antidepressants, 165–67, 175
Trimethylamine
  N-oxygenation of, 179, 189–90
Tumor infiltrating lymphocytes (TIL) therapy, 573, 576–77,581–82, 584–86
Tumor necrosis factor, 585

Tyramine, 171–72
metabolism of monoamine oxidase inhibitors and, 172

U

U50,488, 355, 36–61, 367
UK-14,304, 243, 249–51
Urogenital system
α_2-adrenoreceptor function and, 260–62
female sex hormones and, 261
prostate gland and, 261
uterine contraction and, 261
Urotensin I, 92–93, 98
Uterine contraction
α_2-adrenoreceptor function and, 261–62
estrogen and, 261–62
progesterone and, 262
Uteroglobin, 100–1

V

Vanadate
mimicry of phosphate by, 554–55
Varicella zoster virus, 17–19, 149
drug-resistant mutants of, 149
Vascular dynamics, 71–85
(See also Endothelial dysfunction, Endothelium, Ischemiareperfusion, Vascular endothelium, Vasodilators)
Vascular endothelium
leukocyte adherence to, 79
Vascular permeability, 91–103
corticotropin-releasing factor and, 92–103
immediate-sustained response and, 92
immediate-transient response and, 91–92
Vasoactive intestinal peptide (VIP), 99–103, 620–62
anti-inflammatory properties of, 99–103
Vasoconstriction, 25–27, 243–57, 309, 319, 331, 340–41
α_2-adrenoreceptors and, 257
early research on, 25–27
neuropeptide Y-evoked, 309, 319, 340–41
norepinephrine-induced, 257, 309, 331
serum, 25–27
Vasodilators
endothelium released
adenosine, 72, 74, 76–78, 84–85
nitric oxide, 71–78, 84–85
prostacyclin, 71–72, 74–78, 84–85
Vasopressin, 92, 258
Venlafaxine, 175
Venous capacitance
sympathetic control of α_2-adrenoreceptors and,257
Vimentin, 97
Vision
G-proteins and, 202

W

Whooping cough
ADA-ribosylation of G-proteins and, 227, 229
WIN 44,441-3, 360–61, 363

X

Xenobiotics
dietary, 179, 190–91
metabolism of flavin-containing monooxygenases and, 179–80,191–95
organic sulfur, 193–94
respiratory tract metabolism of, 383–400
alflatoxin, 387
aminofluorene, 393
cigarette smoke, 394–95
dichlobenil, 387
iminodipropionitrile, 387
ipomeanol, 393
methylenedioxyphenyl, 385
naphthalene, 389
nitrosamines, 385–86, 397, 400
Xenopsin, 98

Y

Yeast mating factor peptides, 213–14
^{3}H-Yohimbine
α_2-adrenoreceptor and, 243, 247–50, 255–60,267–69
epinephrine and, 258
impotence and, 267–68
insulin release and, 260
lipolysis and, 268–69
platelet aggregation and, 258
Raynaud's phenomenon and, 267

Z

Zidovudine (See AZT)
Zimeldine, 165, 192
N-oxidation of, 192
Zinc
anion exchange mechanism of transport of, 557